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(71) Applicant (for all designated States except US): OIL AND  
NATURAL GAS CORPORATION LIMITED [IN/IN];  
634, Vasundra Bhavan, Bandra (East), Bombay 400 051  
(IN).

(72) Inventor; and

(75) Inventor/Applicant (for US only): SINGH, Padam  
[IN/IN]; N 3/3, Neelam Tower, Ongc Colony, Ban-  
dra-Kurla Complex, Bandra (East), Bombay 400 051 (IN).

(74) Agent: BHAGNARI, Mahesh; 6, Kermani Bldg, 4th  
Floor, 27, Sir PM Rd, Fort, Bombay 400 001 (IN).

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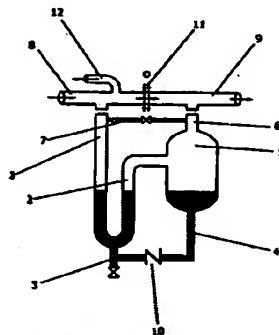
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(54) Title: A LIQUID SEAL FOR RECOVERING FLARED GAS



(57) **Abstract:** The liquid seal according to the present invention consists of a U-tube having one arm connected to the pipe collecting all the gas vented from across the plant and other arm connected to a liquid holder. A pipe provided at the top of the liquid holder is connected to the gas pipe leading to the flare while there is a pipe at the bottom of the said liquid holder fitted with a non-return valve connecting to the bottom of U-tube. There is provided a drain pipe at the bottom of U-tube to drain out the liquid if needed. During normal operation all the vented gas is collected by a pipe and passed on to knock out drum (KOD). Due to the presence of a liquid seal and a piping blind between the KOD and the flare stack, the passage of gas to the flare stack is blocked. The gas passes from the KOD through a line to a recovery system and effectively all vented gas is recovered. When, due to a large increase in the volume of gas vented or an upset in the plant, the pressure on the surface of the liquid in arm (1) becomes more than a predetermined value, then the total liquid in the U-tube becomes incapable of exerting a back pressure on the gas and as a result this column of liquid gets displaced completely into the liquid holder (5) breaking the seal instantaneously. This makes the U-tube empty of the liquid; giving a free passage to the gas to escape through the U-tube to the liquid holder (5) and then through the pipe (6) to the pipe (9) and finally to the flare stack. The excess gas escapes to the flare stack. In order to prevent the release of uncombusted gas into the atmosphere, an ignition system ignites the flare burning all the escaping gas.

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